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[54] **LOCATION SYSTEM AND METHOD WITH ACQUISITION OF ACCURATE LOCATION PARAMETERS**

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[58] **Field of Search** 342/357, 418, 342/457, 352; 364/449

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[57] **ABSTRACT**

A location system relies upon a non-coherent, FDM/TDM communication scheme to measure location parameters. A locator unit moves relative to the locatable unit. A series of messages are communicated between the locator unit and the locatable unit. Through feedback provided from the locator unit to the locatable unit, the locatable unit adjusts its reference frequency and time base so that signals it transmits arrive at the locator unit on a desired frequency and at a desired time slot. The locatable unit estimates Doppler and propagation duration and transmits the estimates to the locator unit. The locator unit measures offsets between desired frequencies and time slots and actual frequencies and time slots. The offsets are combined with the locatable unit's estimates of Doppler and propagation duration to form an integrated Doppler parameter and an integrated propagation duration parameter. The integrated Doppler and propagation duration are used to determine location.

26 Claims, 7 Drawing Sheets